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☐ 1. Document ID: US 20050019922 A1, WO 9946361 A1, AU 9932771 A, EP 1063287 A1, EP 1063287 A8, JP 2000535728 X, US 20030180946 A1, US 6753171 B2

L1: Entry 1 of 1 File: DWPI Jan 27, 2005

DERWENT-ACC-NO: 1999-561673
DERWENT-WEEK: 200509

TITLE: Regulating membrane denaturation reactions without physical shear force, for cell membrane piercing and effective introduction of microinjectors, microelectrodes etc., useful in gene therapy and bioengineering

INVENTOR: KARUBE, I; SAITOH, T

PATENT-ASSIGNEE:

ASSIGNEE	CODE
KARUBE I	KARUI
SAITOH T	SAITI
CENT ADVANCED SCI & TECHNOLOGY INCUBATIO	ADSCN

PRIORITY-DATA: 1998JP-0080177 (March 12, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20050019922 A1	January 27, 2005		000	C12N015/01
WO 9946361 A1	September 16, 1999	J	049	C12M001/00
AU 9932771 A	September 27, 1999		000	
EP 1063287 A1	December 27, 2000	E	000	C12M001/00
EP 1063287 A8	May 2, 2001	E	000	C12M001/00
JP 2000535728 X	October 15, 2002		000	C12M001/00
US 20030180946 A1	September 25, 2003		000	C12N015/88
US 6753171 B2	June 22, 2004		000	C12N015/09

DESIGNATED-STATES: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW DE FR DE FR

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR

US20050019922A1	March 12, 1999	1999WO-JP01223	Div ex
US20050019922A1	December 28, 2000	2000US-0623970	Div ex
US20050019922A1	April 30, 2004	2004US-0836773	
US20050019922A1		US 6753171	Div ex
WO 9946361A1	March 12, 1999	1999WO-JP01223	
AU 9932771A	March 12, 1999	1999AU-0032771	
AU 9932771A		WO 9946361	Based on
EP 1063287A1	March 12, 1999	1999EP-0939150	
EP 1063287A1	March 12, 1999	1999WO-JP01223	
EP 1063287A1		WO 9946361	Based on
EP 1063287A8	March 12, 1999	1999EP-0939150	
EP 1063287A8	March 12, 1999	1999WO-JP01223	
EP 1063287A8		WO 9946361	Based on
JP2000535728X	March 12, 1999	1999WO-JP01223	
JP2000535728X	March 12, 1999	2000JP-0535728	
JP2000535728X		WO 9946361	Based on
US20030180946A1	March 12, 1999	1999WO-JP01223	
US20030180946A1	December 28, 2000	2000US-0623970	
US 6753171B2	March 12, 1999	1999WO-JP01223	
US 6753171B2	December 28, 2000	2000US-0623970	
US 6753171B2		WO 9946361	Based on

INT-CL (IPC): C12 M 1/00; C12 N 5/06; C12 N 5/10; C12 N 15/01; C12 N 15/09; C12 N 15/63; C12 N 15/74; C12 N 15/85; C12 N 15/86; C12 N 15/87; C12 N 15/88; C12 P 7/64

ABSTRACTED-PUB-NO: WO 9946361A
BASIC-ABSTRACT:

NOVELTY - A site-specific denaturation reaction of a membrane or its piercing is performed after contacting a part of all of the membrane with a drug containing a specific compound that can react with a specific stimulus to induce membrane destruction.

DETAILED DESCRIPTION - A site-specific denaturation reaction of a membrane or its piercing is performed after contacting a part of all of the membrane with a drug containing a specific compound that can react with a specific stimulus to induce membrane destruction.

INDEPENDENT CLAIMS are also included for the following:

(i) a site-specific denaturation or pierced membrane or a membrane structure containing the membrane obtained by the above method;

(ii) an method for injection of a compound by mixing a complex made from a drug containing the target compound and carrier together with the above structure by which the compound is introduced into such structure; and

(iii) a membrane destruction membrane for site-specific denaturation or piercing composed of a support member with at least a part of the surface formed with a membrane denaturation reaction-promoting site having a membrane-denaturation force other than physical shear force.

USE - The technique can be used to pierce cell membranes with ultrafine member

constituting microinjectors, micromanipulators or microelectrodes which are hardly applicable in piercing cell membranes by prior-art methods. Such technique is particularly useful in gene therapy by transferring genes into cells, in bioengineering by introducing or removing materials from the cells such as nucleic acids and proteins including foreign substances as applied in cloning animals.

ADVANTAGE - The piercing is site specific without resort to any physical shear force, not achievable by prior-art techniques.

DESCRIPTION OF DRAWING(S) - Diagram showing the relationship of a support member with a cylindrical membrane destruction membrane and a membrane structure receiving treatment.

Membrane structure 1

support member 2

membrane denaturation reaction-promoting portion 3

denatured portion of the membrane 4

CHOSEN-DRAWING: Dwg.3/13

TITLE-TERMS: REGULATE MEMBRANE DENATURE REACT PHYSICAL SHEAR FORCE CELL MEMBRANE PIERCE EFFECT INTRODUCING MICROELECTRODE USEFUL GENE THERAPEUTIC

DERWENT-CLASS: B04 D16 J04

CPI-CODES: B04-F01; B11-C02; B12-M02F; B12-M11F; B14-S03; D05-H10; J04-B01;

CHEMICAL-CODES:

Chemical Indexing M1 *01*
Fragmentation Code
M423 M720 M905 N135 N164 Q233 Q435
Specfic Compounds
A00GTK A00GTP

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C1999-163668

D BIB 5 10 15 20 25 30

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L4 0 SEA PLU=ON L3 AND INTRACELLULAR?

FILE 'MEDLINE' ENTERED AT 13:13:02 ON 13 JUL 2005
L5 30 SEA PLU=ON L3 AND INTRACELLULAR?
D TI 1-30
D BIB AB 11
L6 0 SEA PLU=ON MICROINJECT? AND PHOTODYNAMIC
L7 0 SEA PLU=ON MICROINJECT AND MEMBRANE (3A) DESTABIL?
L8 3 SEA PLU=ON MICROINJECT? AND MEMBRANE (3A) DESTABIL?
D BIB AB 1-3
L9 240 SEA PLU=ON INTRACELLULAR ELECTRODE
D TI 220-240
D BIB AB 230-240
D BIB 50 60 70 80 90 100
L10 2916 SEA PLU=ON MICROINJECT? AND OOCYTE

FILE 'MEDLINE' ENTERED AT 14:24:42 ON 13 JUL 2005
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D KWIC 1-9
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(FILE 'HOME' ENTERED AT 07:55:31 ON 14 JUL 2005)

FILE 'MEDLINE' ENTERED AT 07:55:37 ON 14 JUL 2005
L1 240 SEA PLU=ON INTRACELLULAR ELECTRODE
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D TI 15-40

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S18753	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(5,089,384 or 5,445608).pn. and ground	2005-07-14 07:31:03
S18752	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(5,089,384 or 5,445608).pn. and ground state	2005-07-14 07:30:41
S18751	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(5,089,384 or 5,445608).pn. and groundstate	2005-07-14 07:30:31
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S18749	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5,445608.pn. and fluoresc$	2005-07-14 07:11:30
S18748	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	photodynamic therapy same membrane same singlet	2005-07-14 06:56:03
S18747	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	photodynamic therapy same membrane	2005-07-14 06:55:37
S18746	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5,446157.pn. and ($lipid$ or membrane)	2005-07-14 06:53:35
S18745	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5,445608.pn. and $lipid$	2005-07-14 06:42:22
S18744	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5,445608.pn. and membrane	2005-07-14 06:41:55
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			and singlet	07-14 06:18:31
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S18740	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5446157.pn.	2005-07-13 15:07:50
S18739	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	photodynamic therapy same membrane	2005-07-13 15:03:37
S18738	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5445608.pn. and membrane	2005-07-13 14:57:32
S18737	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	microinjector.clm.	2005-07-13 13:50:45
S18736	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(microinject$3 near5 (device or apparatus)).clm.	2005-07-13 13:50:06
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S18724	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	((20050019922 or 20030180946 or 6753171).pn.) and light guide	2005-07-13 09:32:22
S18723	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	((20050019922 or 20030180946 or 6753171).pn.) and atomic	2005-07-13 09:27:30
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S18721	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(20050019922 or 20030180946 or 6753171).pn.	2005-07-13 07:34:15
S18720	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	inject$ into near2 membrane	2005-07-12 10:43:13
S18719	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	titanium oxide and photodynamic	2005-07-12 09:34:41

			therapy	
S18718	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5876989.pn. and fiber	2005-07-12 09:32:09
S18717	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5445608.pn. and 17	2005-07-12 09:24:20
S18716	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5445608.pn. and 20	2005-07-12 09:24:11
S18715	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	catheter and fiber optic and photodynamic therapy and reservoir	2005-07-12 08:52:58
S18714	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	catheter and fiber optic and photodynamic therapy	2005-07-12 08:43:15
S18713	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	fiber optic and photodynamic therapy	2005-07-12 08:42:58
S18712	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	photodynamic therapy	2005-07-12 08:42:44
S18711	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic and (photosensiti$ or photodynamic)) and membrane and reservoir	2005-07-12 08:29:45
S18710	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic and (photosensiti$ or photodynamic)) and membrane	2005-07-12 08:28:56
S18709	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic and (photosensiti$ or photodynamic))	2005-07-12 08:28:32
S18708	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	membrane and fiber optic and photocataly$	2005-07-12 08:22:26

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S18707	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	fiber optic and photocataly$	2005-07-12 08:22:16	
S18706	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic and (photosensiti$ or photodynamic or photocataly$))	2005-07-12 08:21:43	
S18705	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5925012.pn. and photodynamic	2005-07-12 07:25:46	
S18704	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic same reservoir and (photosensiti$ or photodynamic or photocataly$) and side wall)	2005-07-12 07:21:07	
S18703	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic same reservoir and (photosensiti$ or photodynamic or photocataly$) and light guide)	2005-07-12 07:20:51	
S18702	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic same reservoir and (photosensiti$ or photodynamic or photocataly$))	2005-07-12 07:20:38	
S18701	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic	2005-	

			same reservoir same (photosensiti$ or photodynamic or photocataly$))	07-12 07:20:23
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S18699	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(photocataly$ and photodynamic therapy and (membrane same disrupt$) and photosensiti$)	2005-07-12 07:19:57
S18698	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(photocataly$)	2005-07-12 07:19:48
S18697	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(photodynamic therapy and (membrane same disrupt$) and photosensiti$ and fiber optic and photocataly$)	2005-07-12 07:19:31
S18696	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(photodynamic therapy and (membrane same disrupt$) and photosensiti$ and fiber	2005-07-12 07:19:21

			optic)	
S18695	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(capillary and photodynamic therapy and (membrane same disrupt$) and photosensiti$)	2005-07-12 07:19:10
S18694	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(photodynamic therapy and (membrane same disrupt$) and photosensiti$)	2005-07-12 07:18:57
S18693	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(photodynamic therapy and membrane same disrupt$)	2005-07-12 07:18:40
S18692	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5876989.pn.	2005-07-12 07:14:36
S18691	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	5925012.pn.	2005-07-12 07:13:57
S18690	U	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD	(fiber optic same reservoir and (photosensiti$ or photodynamic or photocataly$) and light guide)	2005-07-12 07:0